

National Flood Insurance Program

44 CFR Part 65

**Identification and Mapping of Special
Hazard Areas**

Selected Pages Only

Including NFIP rules that became effective through 6/5/2000

**As prepared by the Maine State Planning Office on 2/23/01
with key words and phrases bolded and underlined for
emphasis**

Part 65 (in part)- Identification and Mapping of Special Hazard Areas

§ 65.1 Purpose of part.

42 U.S.C. 4103 authorizes the Director to identify and publish information with respect to all areas within the United States having special flood, mudslide (i.e., mudflow) and flood-related erosion hazards. The purpose of this part is to **outline the steps a community needs to take in order to assist the Agency's effort in providing up-to-date** identification and publication, in the form of the **maps** described in part 64, **on special flood**, mudslide (i.e., mudflow) and flood-related erosion **hazards**.

§ 65.2 Definitions

(a) Except as otherwise provided in this part, the definitions set forth in part 59 of this subchapter are applicable to this part.

(b) For the purpose of this part, a certification by a registered professional engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied. Certification of data is a statement that the data is accurate to the best of certifier's knowledge. Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices. Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide protection from the base flood. Certification of "as built" conditions is a statement that the structure(s) has been built according to the plans being certified, is in place, and is fully functioning.

§ 65.3 Requirement to submit new technical data.

A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but **not later than six months after the date such information becomes available, a community shall notify the Administrator of the changes** by submitting technical or scientific data in accordance with this part. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

§ 65.4 Right to submit new technical data.

(a) A community has a **right to request changes** to any of the information shown on an effective map **that does not impact flood plain or floodway delineations or base flood elevations**, such as community **boundary changes, labeling, or planimetric details**. Such a submission shall include appropriate supporting documentation in accordance with this part and **may be submitted at any time**.

(b) All **requests** for changes to effective maps, other than those initiated by FEMA, must be made **in writing by the Chief Executive Officer** of the community (CEO) or an official

designated by the CEO. Should the CEO refuse to submit such a request on behalf of another party, FEMA will agree to review it only if written evidence is provided indicating the CEO or designee has been requested to do so.

(c) **Requests for changes** to effective Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FHBMs) **are subject to the cost recovery procedures** described in 44 CFR part 72. As indicated in part 72, **revisions requested to correct mapping errors or errors in Flood Insurance Study analysis are not subject to the cost-recovery procedures.**

§ 65.5 Revision to special flood hazard area boundaries with no change to base flood elevation determinations.

(a) *Data requirements for topographic changes.* In many areas of special flood hazard (excluding V zones and floodways) it may be feasible to elevate areas with engineered earthen fill above the base flood elevation. Scientific and technical information to support a request **to gain exclusion from an area of special flood hazard** of a structure or parcel of land that has been elevated by the placement of engineered earthen fill **will include the following:**

(1) A **copy of the recorded deed** indicating the legal description of the property and the official recordation information (deed book volume and page number) and **bearing the seal** of the appropriate recordation official (e.g., County Clerk or Recorder of Deeds).

(2) If the property is recorded on a plat map, a copy of the recorded plat map, a **copy of the recorded plat indicating both the location of the property and the official recordation information** (plat book volume and page number) and bearing the seal of the appropriate recordation official. If the property is not recorded on a plat map, FEMA requires **copies of the tax map or other suitable maps** to help in locating the property accurately.

(3) **A topographic map** or other information indicating existing ground elevations and date of fill. FEMA's determination to exclude a legally defined parcel of land or a structure from the area of special flood hazard will be based upon a comparison of the base flood elevations to the lowest ground elevation of the parcel or the lowest adjacent grade to the structure. **If the lowest ground elevation** of the entire legally defined parcel of land or the lowest adjacent grade to the structure **are at or above** the elevations of **the base flood, FEMA will exclude the parcel** and/or structure from the area of special flood hazard.

(4) **Written assurance by the participating community** that they have **complied with** the appropriate minimum floodplain management requirements under **§ 60.3**. This includes the requirements that:

(i) Existing residential **structures** built in the SFHA **have** their **lowest floor** elevated to or **above the base flood;**

(ii) The participating **community has determined that the land** and any **existing or proposed structures** to be removed from the SFHA **are “reasonably safe from flooding”**, and that they **have on file**, available upon request by FEMA, all **supporting analyses and documentation** used to make that determination;

(iii) The participating **community has issued permits** for all existing and proposed construction or other development; and

(iv) All necessary **permits** have been received from those governmental agencies where approval is **required by Federal, State, or local law**.

(5) **If the community cannot assure** that it has complied with the appropriate minimum floodplain management requirements under § 60.3, of this chapter, the map revision **request will be deferred until** the community remedies all violations to the maximum extent possible through coordination with FEMA. Once the remedies are in place, and the community assures that the land and structures are “reasonably safe from flooding,” we will process a revision to the SFHA using the criteria set forth in § 65.5(a). The community must maintain on file, and make available upon request by FEMA, all supporting analyses and documentation used in determining that the land or structures are “reasonably safe from flooding.”

(6) **Data to substantiate the base flood elevation**. If we complete a Flood Insurance Study (FIS), we will use those data to substantiate the base flood elevation. Otherwise, the community may submit data provided by an authoritative source, such as the U.S. Army Corps of Engineers, U.S. Geological Survey, National Resources Conservation Service, State and local water resource departments, or technical data prepared and certified by a registered professional engineer. If base flood elevations have not previously been established, we may also request hydrologic and hydraulic calculations.

(7) A **revision** of flood plain delineation **based on fill must demonstrate** that any such fill **does not result in a floodway encroachment**.

(b) **New topographic data**. A community may also follow the procedures described in paragraphs (a)(1) through (6) of this section to request a map revision when no physical changes have occurred in the area of special flood hazard, when no fill has been placed, and **when the natural ground elevations, are at or above the elevation of the base flood**, where new topographic maps are more detailed or more accurate than the current map.

(c) **Certification requirements**. A **registered professional engineer or licensed land surveyor must certify** the items required in paragraph (a) (3) and (6) and (b) of this section. Such certifications are subject to the provision under §65.2.

(d) **Submission procedures**. **Submit all requests** to the appropriate address serving the community’s geographic area or **to the FEMA Headquarters** Office in Washington, DC.

[66 FR 22332, May 4, 2001]

§65.6 Revision of base flood elevation determinations

(a) *General conditions and data requirement.*

- (1) The supporting data must include **all the information FEMA needs** to review and evaluate the request. This **may involve** the requestor's performing **new hydrologic and hydraulic analysis** and delineation of new flood plain boundaries and floodways, as necessary.
- (2) To avoid discontinuities between the revised and unrevised flood data, the necessary hydrologic and hydraulic analyses submitted by the map revision requestor must be extensive enough to **ensure** that a logical **transition** can be shown **between the revised flood elevations, flood plain boundaries, and floodway and those developed previously for areas not affected** by the revision. Unless it is demonstrated that it would not be appropriate, the revised and unrevised base flood elevations must match within one-half foot where such transitions occur.
- (3) **Revisions cannot be based on the effects of proposed projects** or future conditions. Section 65.8 of this subchapter contains provisions for obtaining conditional approval of proposed projects that may effect map changes when they are completed.
- (4) The **datum and date of releveling of benchmarks**, if any, to which the elevation are referenced **must be indicated**.
- (5) **Maps will not be revised** when discharges change as a result of the use of an alternative methodology or data for computing flood discharges **unless the change is statistically significant** as measured by a confidence limits analysis of the new discharge estimates.
- (6) **Any computer program used** to perform hydrologic or hydraulic analyses in support of a flood insurance map revision **must meet all the following criteria:**
 - (i) It must have been reviewed and accepted by a governmental agency responsible for the implementation of programs for flood control and/or the regulation of flood plain lands. For computer programs adopted by non-Federal agencies, certification by a responsible agency official must be provided which states that the **program has been reviewed, tested, and accepted** by that agency for purposes of design of flood control structures or flood plain land use regulation.
 - (ii) It **must be well- documented** including source codes and user's manuals.
 - (iii) It must be available to FEMA and all present and future parties impacted by flood insurance mapping developed or amended through the use of the program. For programs not generally available from a Federal agency, the source code and user's manuals must be sent to FEMA free of charge, with **fully- documented permission**

from the owner that FEMA may release the code and user's manuals to such impacted parties.

(7) A **revised hydrologic analysis** for flooding sources with established base flood elevations **must include evaluation of the same recurrence interval(s) studied in the effective FIS**, such as the 10-, 50-, 100-, and 500-year **flood discharges**.

(8) A **revised hydrologic analysis** for flooding sources with established base flood elevations **must include evaluation of the same recurrence interval(s) studied in the effective FIS, such as the 10-, 50-, 100-, and 500-year flood elevations, and of the floodway**. Unless the basis of the request is the use of an alternative hydraulic methodology or the requestor can demonstrate that the data of the original hydraulic computer model is unavailable or its use is inappropriate, the analysis shall be made using the same hydraulic computer model used to develop the base flood elevation shown on the effective Flood Insurance Rate Map and updated to show present condition in the flood plain. Copies of the input and output data from the original and revised hydraulic analyses shall be submitted.

(9) A **hydrologic or hydraulic analysis** for a flooding source **without established base flood elevations may be performed for only the 100-year flood**.

(10) A **revision** of flood plain delineations **based on topographic changes must demonstrate that** any topographic **changes have not resulted in a floodway encroachment**.

(11) **Delineations** of flood plain boundaries for a flooding source **with established base flood elevations must provide both the 100- and 500- year flood plain boundaries**. For flooding sources **without established base flood elevations, only 100-year flood plain boundaries need be submitted**. These boundaries should be shown on a topographic map of suitable scale and contour interval.

(12) If a community or other party seeks **recognition** from FEMA on its FHBM or FIRM, that an **altered watercourse provides protection** from, or mitigates potential hazards of, the base flood, the Administrator may request specific **documentation** from the community **certifying** that, and describing **how**, the provisions of §60.3(b)(7) of this subchapter will be met for the particular watercourse involved. This documentation, which may be in the form of a written statement from the Community Chief Executive Officer, an ordinance, or other legislative action, shall describe the nature of the maintenance activities to be performed, the frequency with which they will be performed, and the title of the local community official who will be responsible for assuring that the maintenance activities are accomplished.

(13) Notwithstanding any other provisions of §65.6, a community may submit, **in lieu of the documentation specified in §65.6(a)(12), certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance**.

(b) *Data requirements for correcting map errors.* To correct errors in the original flood analysis, **technical data submissions shall include** the following:

(1) **Data identifying mathematical errors**

(2) **Data identifying measurement errors** and providing correct measurements.

(c) *Data requirements for changed physical conditions.* Revisions based on the effects of physical changes that have occurred in the flood plain shall include:

(1) Changes affecting hydrologic conditions. The following data must be submitted:

(i) **General description of the changes** (e.g., dam, diversion channel, or detention basin).

(ii) **Construction plans for as-built conditions**, if applicable.

(iii) **New hydrologic analysis accounting for the effects of the changes**.

(iv) **New hydraulic analysis and profiles** using the new flood discharge values resulting from the hydrologic analysis.

(v) **Revised delineations** of the flood plain boundaries and floodway.

(2) *Changes affecting hydraulic conditions.* The following data shall be submitted:

(i) General **description of the changes** (e.g., channelization or new bridge, culvert, or levee).

(ii) **Construction plans for as built conditions**.

(iii) New hydraulic analysis and flood elevation profiles accounting for the effects of the changes and using the original flood discharge values upon which the original map is based.

(iv) Revised delineations of the flood plain boundaries and floodway.

(3) **Changes involving topographic conditions**. The following data shall be submitted:

(i) **General description of the changes** (e.g., grading or filling).

(ii) **New topographic information**, such as spot elevation, cross sections grading plans, or contour maps.

- (iii) **Revised delineations of the flood plain boundaries** and, if necessary, floodway.
- (d) **Data requirements for incorporating improved data.** Requests for revisions based on the use of improved hydrologic, hydraulic, or topographic data shall include the following data:
- (1) **Data that is** believed to be **better than** those used in the **original analysis** (such as additional years of stream gage data).
 - (2) **Documentation of the source** of the data.
 - (3) Explanation as to **why the** use of the **new data will improve the results** of the original analysis
 - (4) **Revised hydrologic analysis** where hydrologic data are being incorporated.
 - (5) **Revised hydraulic analysis and flood elevation profiles** where new hydrologic or hydraulic data are being incorporated.
 - (6) **Revised delineations of the flood plain boundaries** and floodway where new hydrologic, hydraulic, or topographic data are being incorporated.
- (e) **Data requirements for incorporating improved methods.** Requests for revisions based on the use of improved hydrologic or hydraulic methodology shall include the following data:
- (1) **New hydrologic analysis when an alternative hydrologic or hydraulic methodology is being proposed.**
 - (2) **New hydraulic analysis and flood elevation profiles** when an alternative hydrologic or hydraulic methodology is being proposed.
 - (3) **Explanation as to why the alternative methodologies are superior** to the original methodologies.
 - (4) Revised delineations of the flood plain boundaries and floodway based on the new analysis(es).
- (f) **Certification Requirements.** **All analysis and data** submitted by the requester **shall be certified** by a registered professional engineer or licensed land surveyor, as appropriate, subject to the definition of “certification” given at § 65.2 of this subchapter.
- (g) **Submission procedures.** All requests **shall be submitted to** the FEMA Regional Office servicing the community’s geographic area or to the **FEMA Headquarters** Office in Washington, DC, and shall be **accompanied by the appropriate payment**, in accordance with 44 CFR part 72.

§65.7 Floodway Revisions.

(a) *General.* Floodway data is developed as part of FEMA Flood Insurance Studies and is utilized by communities to select and adopt the flood plain management program required in § 60.3 of this subchapter. **When** it has been determined by a community that **no practicable alternative exist to revising the boundaries of its previously adopted floodway the procedures below shall be followed.**

(b) **Data requirements when base flood elevation changes are requested.** When a floodway revision is requested in association with a change to base elevations, the data requirements of §65.6 shall also be applicable. In addition, the following documentation shall be submitted:

(1) Copy of a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions.

(2) Copy of a **letter notifying the appropriate State agency** of the floodway revision when the State has jurisdiction over the floodway or its adoption by communities participating in the NFIP.

(3) **Documentation of the approval of the revised floodway by the appropriate State agency** (for communities where the State has jurisdiction over the floodway or its adoption by communities participating in the NFIP).

(4) **Engineering analysis** for the revised floodway, as described below:

(i) The **floodway analysis** must be performed **using the hydraulic computer model used to determine the proposed base flood elevations.**

(ii) The **floodway limits** must be **set so** that **neither the effective base flood elevation nor the proposed base flood elevation** if less than the effective base flood elevations, **are increased by more than the amount specified under §60.3 (d)(2).** Copies of the input and output data from the original and modified computer models must be submitted.

(5) **Delineation of** the revised **floodway on the same topographic map** used for the delineation of the revised flood boundaries.

(c) **Data requirements for changes not associated with base flood elevation changes.** The following data shall be submitted

(1) **Items described in paragraphs (b)(1) through (3) of this section** must be submitted.

(2) **Engineering analysis for the revised floodway,** as described below:

- (i) The **original hydraulic computer model** used to develop the established base flood elevation must be modified to **include all encroachments** that have occurred in the flood plain since the existing floodway as developed. If the original hydraulic computer model is not available, an alternate hydraulic computer model may be used provided the alternate model has been calibrated so as to reproduce the original water surface profile of the original hydraulic computer model. The alternate model must be then modified to include all encroachments that have occurred since the existing floodway was developed.
- (ii) The **floodway analysis** must be performed with the modified computer model **using the desired floodway limits**.
- (iii) The **floodway limits** must be set so that the **combined effects** of the past encroachments and the new floodway limits **do not increase the effective amount specified in §60.3(d)(2)**. Copies of the input and output data from the original and modified computer model must be submitted.
- (3) Delineation of the revised floodway on a copy of the effective NFIP map and a suitable topographic map.
- (d) **Certification requirements.** **All analyses submitted shall be certified by a registered professional engineer.** All topographic data shall be certified by a registered professional engineer or licensed land surveyor. Certifications are subject to the definition given at §65.2 of this subchapter.
- (e) **Submission procedures.** **All requests** that involve changes to floodways shall be **submitted to the appropriate FEMA Regional Office** servicing the community's geographic area.

§65.8 Review of proposed projects.

A community, or an individual through the community, **may request** FEMA's **comments on whether a proposed project**, if built as proposed, **would justify a map revision**. FEMA's comments will be issued in the form of a letter, termed a **Conditional Letter of Map Revision**, in accordance with 44 CFR part 72. The data required to support such requests are the same as those required for final revision under §§65.5, 65.6, and 65.7., except as-built certification is not required. All such requests shall be submitted to the FEMA Headquarters Office in Washington, DC, and shall be accompanied by the appropriate payment, in accordance with 44 CFR part 72.

§65.9 Review and response by the Administrator.

If any **questions** or problems **arise** during review, **FEMA will consult** the Chief Executive Officer of the community (CEO), **the community** official designated by the CEO, and/or the requester for resolution. Upon receipt of a revision request, the Administrator shall mail an acknowledgment of receipt of such request to the CEO. Within 90 days of receiving the request

with all necessary information, the Administrator shall notify the CEO of one or more of the following:

- (a) The effective map(s) shall not be modified;
- (b) The base flood elevation on the effective FIRM shall be modified and new base flood elevations shall be established under the provisions of part 67 of this subchapter;
- (c) The changes requested are approved and the map(s) amended by letter of Map Revision (LOMR);
- (d) The changes requested are approved and a revised map(s) will be printed and distributed;
- (e) The changes requested are not of such a significant nature as to warrant a reissuance or revision of the flood insurance study or maps and will be deferred until such time as a significant change occurs;
- (f) An additional 90 days is required to evaluate the scientific or technical data submitted; or
- (g) Additional data are required to support the revision request.
- (h) The required payment has not been submitted in accordance with 44 CFR part 72, no review will be conducted and no determination will be issued until payment is received.

65.10 Mapping of areas protected by levee systems.

- (a) *General.* For the purposes of the NFIP, FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by §60.3 of this subchapter. Accordingly, this section describes the types of **information FEMA needs** to recognize, on NFIP maps, that a levee system provides protection for the base flood. This information must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revisions under the provisions of part 65 of this subchapter is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how a structure or system will perform in a flood event..
- (b) Design criteria. For levees to be recognized by FEMA, evidence that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

(1) Freeboard.

(i) Riverine levees must provide a **minimum freeboard of three feet** above the water-surface level of the base flood. An **additional one foot** above the minimum is **required within 100 feet at either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted.** An **additional one-half foot** above the minimum **at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee,** is also required.

(ii) Occasionally, **exceptions** to the minimum riverine freeboard requirement described in paragraph (b)(1)(i) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must **evaluate the uncertainty** in the estimated base flood elevation profile and include, but not necessarily be limited to an **assessment of statistical confidence limits** of the 100-year discharge: changes in stage-discharge relationships; and sources, potential, and magnitude of debris, sediment, and ice accumulation. It **must** be also shown that the levee will **remain structurally stable during the base flood when such additional loading considerations are imposed.** Under no circumstances will freeboard of less than two feet be accepted.

(iii) For **coastal levees**, the freeboard **must be** established at **one foot above the height of the one percent wave or the maximum wave runup** (whichever is greater) associated with the 100-year stillwater surge elevation at the site.

(iv) Occasionally, **exceptions** to the minimum coastal levee freeboard requirement described in paragraph (b)(1)(iii) of this section, **may be approved.** Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular **emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee.** Under no circumstances, however, will a freeboard of less than two feet above the 100-year stillwater surge elevation be accepted.

(2) *Closures.* **All openings must be** provided with closure devices that are **structural parts of the system** during operation and design according to sound engineering practice.

(3) *Embankment protection.* Engineering analyses must be submitted that **demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood,** as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. The factors to be addressed in such analyses **include,** but are not limited to: **Expected flow velocities** (especially in constricted areas): **expected wind and wave action; ice loading; impact of debris; slope protection techniques; duration of flooding at various stages and velocities;**

embankment and foundation materials; levee alignment, bends, and transitions; and levee side slopes.

(4) *Embankment and foundation stability.* **Engineering analyses that evaluate levee embankment stability must be submitted.** The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall **demonstrate that the seepage** into or through the levee foundation and embankment **will not jeopardize embankment or foundation stability.** An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (COE) manual, “Design and Construction of Levees” (EM 1110-2-1913, Chapter 6, Section II), may be used. The factors that shall be addressed in the analyses include: Depth of flooding, duration of flooding, embankment geometry and length of seepage path at critical locations, embankment and foundation materials, embankment compaction, penetrations, other design factors affecting seepage (such as drainage layers), and other design factors affecting embankment and foundation stability (such as berms).

(5) *Settlement.* **Engineering analyses must be submitted that assess** the potential and magnitude of **future losses of freeboard as a result of levee settlement** and demonstrate that freeboard will be maintained within the minimum standards set forth in paragraph (b)(1) of this section. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in the COE manual, “Soil Mechanics Design-Settlement Analysis” (EM 1100-2-1904) must be submitted.

(6) *Interior drainage.* An analysis must be submitted that **identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot,** the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

(7) *Other design criteria.* **In unique situations,** such as those where the levee system has relatively high vulnerability, FEMA **may require that other design criteria and analyses be submitted to show that the levees provide adequate protection.** In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA will also provide the rationale for requiring this additional information.

(c) *Operation plans and criteria.* For a levee system to be recognized, the operational criteria must be as described below. **All closure devices** or mechanical systems for internal drainage, whether manual or automatic, **must be operated in accordance with an officially adopted operation manual,** a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the

jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(1) *Closures.* Operation **plans** for closures **must include** the following:

(i) **Documentation** of the flood warning system, under the jurisdiction of Federal, State, or community officials, **that will** be used to **trigger emergency operation activities** and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

(ii) A formal **plan of operation** including specific **actions and assignments** of responsibility by individual name or title.

(iii) **Provisions for periodic operation**, at not less than one-year intervals, of the closure structure for testing and training purposes.

(2) *Interior drainage systems.* Interior drainage **systems associated with levee systems** usually include storage areas, gravity outlets, pumping stations, or a combination thereof. These drainage systems **will be recognized by FEMA on NFIP maps** for flood protection purposes **only if the following minimum criteria are included** in the operation plan:

(i) **Documentation of the flood warning system**, under the jurisdiction of Federal, State, or community officials, that will trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

(ii) A formal **plan of operation** including specific actions and assignments of responsibility by individual name or title.

(iii) Provision for **manual backup** for the activation **of automatic systems**.

(iv) Provisions for **periodic inspection** of interior drainage systems and **periodic operation** of any mechanized portions for testing and training purposes. No more than one year shall elapse between either the inspections or the operations.

(3) *Other operation plans and criteria.* **Other operating plans and criteria may be required** by FEMA to ensure that adequate protection is provided in specific situations. In such cases, sound emergency management practice will be the standard upon which FEMA determinations will be based.

(d) *Maintenance plans and criteria.* For levee systems to be recognized as providing protection from the base flood, the **maintenance criteria must be as described herein**. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system

when recognition is being sought or when the plan for a previously recognized system is revised in any manner. All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance. This plan **must document the formal procedure that ensures** that **the stability, height, and overall integrity of the levee** and its associated structures and systems are maintained. At a minimum, maintenance plans shall specify the maintenance activities to be performed, the frequency their performance, and the person by name or title responsible for their performance.

(e) *Certification requirement.* Data submitted to support that a given levee system complies with the structural requirements set forth in paragraphs (b)(1) through (7) of this section must be certified by a registered professional engineer. Also, certified as-built plans of the levee must be submitted. **Certifications are subject to the definition given at §65.2** of this subchapter. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

(51 FR 30316, Aug. 25, 1986)

§65.11 Evaluation of sand dunes in mapping coastal flood hazard areas.

(a) *General conditions.* For the purposes of the NFIP, FEMA will consider storm-induced dune erosion potential in its determination of coastal flood hazards and risk mapping efforts. The criterion to be used in the **evaluation of dune erosion will apply to** primary frontal **dunes as defined in § 59.1**, but does not apply to artificially designed and constructed dune that are not well-established with long standing vegetative cover, such as the placement of sand materials in a dune-like formation.

(b) *Evaluation criteria.* Primary frontal **dunes will not be considered** as effective barriers to base flood storm surges and associated wave action **where the cross-sectional area** of the primary frontal dune, **as measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest is equal to, or less than, 540 square feet.**

(c) *Exceptions.* **Exceptions to the** evaluation **criterion may be granted where** it can be **demonstrated** through authoritative historical documentation that the primary frontal dunes at a specific **site withstood previous base flood** storm **surges** and associated wave action.

[53 FR 1629, May 6, 1988]

65.12 Revision of flood insurance rate maps to reflect base flood elevation caused by proposed encroachments.

(a) When a community proposes **to permit encroachments** upon the floodplain when a regulatory floodway has not been adopted or to permit encroachments upon an adopted

regulation floodway which will cause base flood elevation increases in excess of those permitted under paragraphs (c)(10) or (d)(3) of § 60.3 of this subchapter, the community shall **apply to the Administrator for conditional approval** of such action **prior to permitting** the encroachments to occur and shall submit the following as part of its application:

(1) A request for conditional approval of map change and the appropriate **initial fee** as specified by § 72.3 of this subchapter **or** a request for **exemption from fees** as specified by § 72.5 of the subchapter, whichever is appropriate;

(2) An **evaluation of alternatives which would not result in a base flood elevation** increase above that permitted under paragraphs (c)(10) or (d)(3) of § 60.3 of this subchapter **demonstrating why these alternatives are not feasible**;

(3) Documentation of individual **legal notice** to all impacted property owners within and outside of the community, explaining the impact of the proposed action on their property.

(4) **Concurrence of** the Chief Executive Officer of any **other communities impacted** by the proposed actions;

(5) **Certification that no structures** are located in areas which would be **impacted** by the increased base flood elevation;

(6) A **request for revision of base flood elevation** determination according to the provisions of § 65.6 of this part;

(7) A **request for floodway revision** in accordance with the provisions of § 65.7 of this part;

(b) Upon receipt of the Administrator's conditional approval of map change and prior to approving the proposed encroachments, a community shall **provide evidence** to the Administrator of the adoption **of flood plain management ordinances** incorporating the increased base flood elevations and/or revised floodway reflecting the post-project condition.

(c) Upon completion of the proposed encroachments, a community shall **provide as-built certification** in accordance with the provisions of § 65.3 of this part. The Administrator will initiate a final map revision upon receipt of such certifications in accordance with part 67 of this subchapter.

[The remainder of **§65.13 through 65.17** was not included at this time due to limited applicability in Maine. They may be added at a later date. Subjects not covered include: alluvial fan flooding, areas for which local flood protection systems no longer provide protection,

discussion of listing communities submitting technical data, Flood Hazard Determination Forms, and review of determinations.]

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